NO. 2004-3

DOCKET NO. D-77-20 CP (Revision 7)

DELAWARE RIVER BASIN COMMISSION

A RESOLUTION, superseding and incorporating as necessary certain provisions of Resolutions D-77-20 CP (Revision 2) through D-77-20 CP (Revision 6), to establish an experimental augmented conservation release program for the New York City Delaware Basin Reservoirs for the period beginning May 1, 2004 and ending May 31, 2007, and to engage in discussions to develop a long-term, flexible program to manage releases from the reservoirs.

WHEREAS, Docket No. D-77-20 CP (Revision 6) expires on April 30, 2004; and

WHEREAS, it is the objective of the Parties to the 1954 Supreme Court Decree, hereafter the Decree Parties, to develop a program for protecting tail water fisheries below New York City's Delaware Basin Reservoirs, hereafter City Delaware Reservoirs, based upon sustainable sources of water, while considering overall needs in the tailwaters below the City Delaware Reservoirs and in the main stem and bay; and

WHEREAS, the Delaware River Basin Commission (DRBC), through its Flow Management Technical Advisory Committee (FMTAC) and its Comprehensive Plan update process, is considering several approaches to assess overall needs in the tailwaters below the City Delaware Reservoirs and in the main stem and bay; and

WHEREAS, Docket No. D-77-20 CP (Revision 6) provided that the New York City Department of Environmental Protection (NYCDEP) and the New York State Department of Environmental Conservation (NYSDEC) fund an update of the OASIS model and analysis of alternatives for an interim fisheries protection program for the City Delaware Reservoir tailwaters and, based on the results of this analysis, submit by September 30, 2003 a formal proposal for consideration by the Decree Parties and the DRBC for interim fisheries protection while discussions continue toward development of a long-term flexible reservoir releases program; and

WHEREAS, the State of New York has proposed an interim reservoir releases program to maintain target flows in the tailwaters below the City Delaware Reservoirs for the period beginning May 1, 2004 and ending May 31, 2007; and

WHEREAS, the proposed interim reservoir releases program will allow for more comprehensive and flexible management of releases in response to temperature and flow conditions in the New York City Delaware Basin reservoir tailwaters and upper main stem Delaware; and

WHEREAS, populations of dwarf wedgemussels, a federally- and state-listed endangered species, are known to exist in the Neversink River and mainstem Delaware River; and

WHEREAS, Resolution No. 2002-33 approved a "Drought Operations Plan for Lake Wallenpaupack", implementation of which is contingent upon the Decree Parties agreeing upon a reservoir releases program for the City Delaware Reservoirs that ameliorates any adverse impact of releases from Lake Wallenpaupack under the provisions of Resolution No. 2002-33; and

WHEREAS, NYSDEC, in collaboration with the Subcommittee on Ecological Flows (SEF) and the FMTAC, has developed a "Monitoring Plan for the Delaware River Tailwaters, 2004-2006" (Monitoring Plan); and

WHEREAS, the Monitoring Plan and the proposal described herein have been agreed to by all Decree Parties; now therefore,

BE IT RESOLVED by the undersigned Commissioners and Decree Parties:

1. The Decree Parties agree that development and implementation of a viable long-term program to address fisheries and other needs in the tailwaters below the City Delaware Reservoirs and in the main stem and bay requires consideration of other related issues, including interbasin transfer policy, Good Faith operations, New York City water supply needs, the DRBC Comprehensive Plan, the Basinwide Plan currently being developed, Montague flow targets, the Excess Release Quantity, and equitable apportionment of the waters of the Delaware Basin in accordance with the provisions of the 1954 Decree and the provisions of Docket D-77-20CP as revised which are not being superseded hereby.

2. The Decree Parties commit to continuing discussions with the aid of the FMTAC guided by the Comprehensive Plan and the Basinwide Plan currently under development, with the objective of developing and implementing by May 31, 2007 a long-term, flexible program to manage releases from the City Delaware Reservoirs to better address fisheries in the tailwaters below the City Delaware Reservoirs. The long-term program must take into account needs in the main stem and the bay as well as the related issues recited in Paragraph 1 above.

3. During the effective period of the interim proposal, the following drought stage definitions and procedures will be in effect:

   A. <u>Drought Watch.</u>

   The seasonally segmented line (shown as dashes) splitting the current "Drought Warning" in Figure 1 of DRBC Resolution No. 83-13 and DRBC Docket No. D-77-20 CP (Revised) is temporarily raised by four (4) billion gallons during the entire year. In addition, the upper half of the drought warning, previously referred to as DWI, is temporarily renamed Drought Watch. Operations during the renamed Drought Watch shall continue to limit the diversion by New York City to 680 million gallons per day (mgd) and reduce the Montague and Trenton flow targets to 1,655 cubic feet per second (cfs) and 2,700 cfs, respectively. The New Jersey diversion will remain at 100 mgd.

B. Drought Warning.

The lower half of the drought warning (DW2), based upon the rule curves included in DRBC Resolution No. 83-13 and as temporarily modified by "A" above, is designated Drought Warning, with diversions and the flow targets at Montague and Trenton conforming to DRBC Resolution No. 83-13 for the former DW2.

C. Drought Emergency.

The Drought Emergency provision shall remain at the levels designated in DRBC Resolution No. 83-13.

D. Balancing Adjustment.

In order to conserve water, the Delaware River Master is requested to utilize a balancing adjustment when calculating the releases to be directed to meet the Montague target.

4. There is hereby established, for thermal and habitat protection in the tailwaters below the City Delaware Reservoirs, for the period beginning May 1, 2004 and ending May 31, 2007, a Habitat Protection Bank (HPB), with the following provisions:

A. A "Habitat Protection Bank (HPB)" of 20,000 cubic feet per second days (cfs-days) is established, which shall consist of: an Excess Release Quantity Bank (ERQB) of 5,700 cfs-days, provided from the Excess Release Quantity (ERQ); a Thermal Release Bank (TRB) of 9200 cfs-days; and a Supplemental Release Bank (SRB) of 5,100 cfs-days. Water from the ERQ shall be credited on June 15, and any water remaining from that quantity shall expire on March 15 of the following year. The 9,200 cfs-days TRB and 5,100 cfs-days SRB shall be credited on May 1, and any water remaining in these banks shall expire on April 30 of the following year. In any year during which the Drought Operations Plan for Lake Wallenpaupack is not in effect, the HPB shall be limited to 16,000 cfs-days, consisting of: an ERQB of 3,420 cfs-days from the ERQ; a TRB of 9,200 cfs-days; and an SRB of 3,380 cfs-days. Waters from the ERQ not contributed to the HPB shall be utilized to provide a proportionally-reduced increase in the Montague flow objective according to the current procedures, or may be banked in accordance with the procedures outlined in the Lower Basin Drought Management Plan. In addition, an Amelioration Bank (AB) of 3,000 cfs-days may be available subject to the provisions of Paragraph 6.

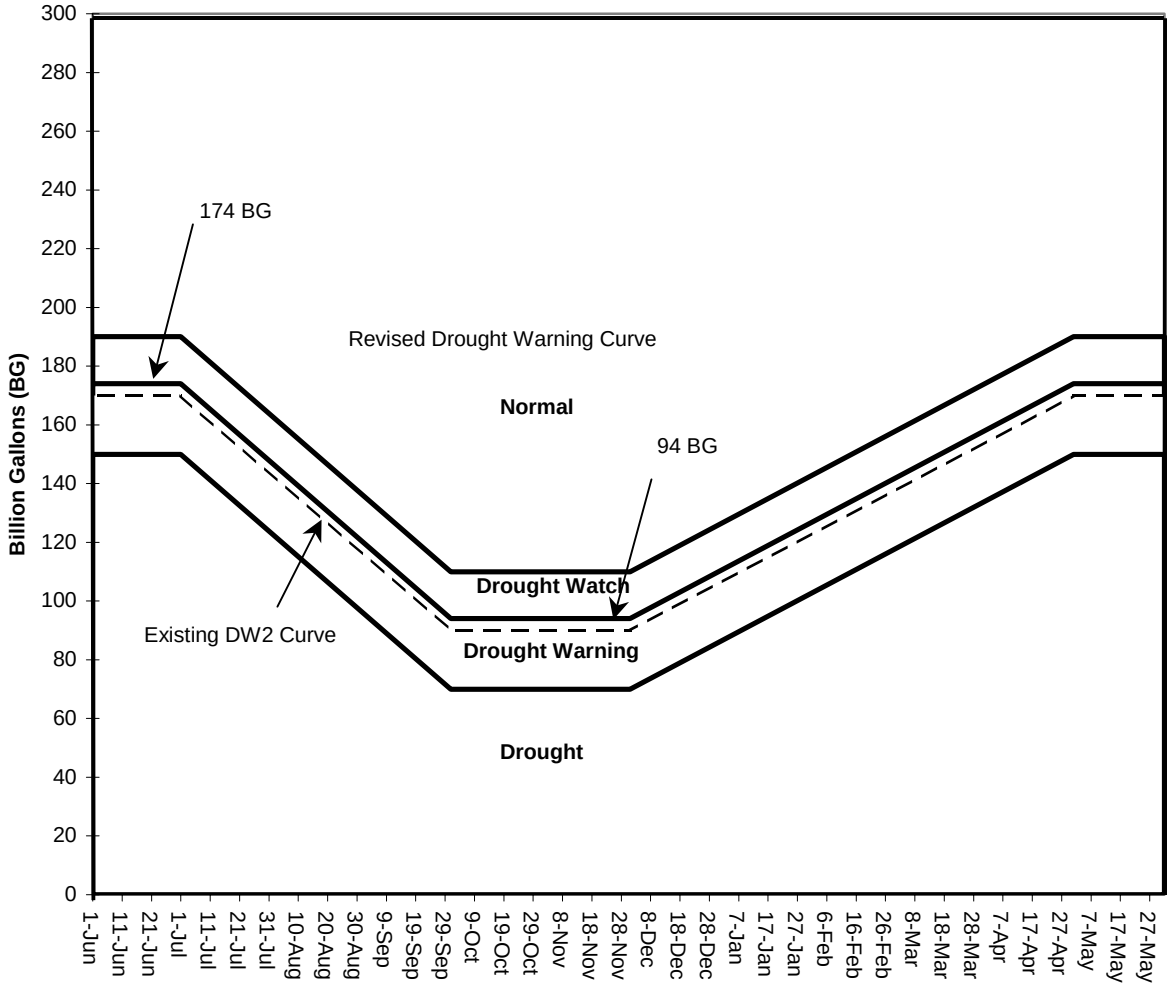
B. The TRB shall be used to direct releases during May 1 through October 31 so as to prevent to the maximum extent possible any instantaneous water temperature higher than 75° F or any daily average temperature higher than 72° F in the designated downstream areas as determined from measurements at the Hale Eddy, Harvard, Bridgeville, Hancock and Hankins gaging stations. Designated downstream areas shall mean the following waters:

- The West Branch Delaware River between Cannonsville Reservoir and Hancock, NY
- The East Branch Delaware River between Pepacton Reservoir and the confluence of the East Branch Delaware River and the Beaver Kill
- The Delaware River between Hancock, NY and Hankins, NY
- The Neversink River between Neversink Reservoir and Bridgeville, NY

Any quantity of water remaining in the TRB after October 31 may subsequently be used for habitat protection.

C. Upon entry into Drought Watch (Figure 1), the remaining quantity of water in the TRB and SRB shall each be reduced by 15 percent. In addition, 2000 cfs-days of water from the Amelioration Bank (AB) would be made available subject to the provisions of Paragraph 6.

Figure 1.
New York City Delaware Basin Reservoir Experimental Rule Curve



D. Upon entry into Drought Warning (Figure 1), the remaining quantity of water in the TRB and SRB shall each be reduced by 15 percent. In addition, any water remaining in the 2000 cfs-day AB would be made available subject to the provisions of Paragraph 6.

E. Upon entry into Drought (Figure 1), habitat and thermal protection may be provided, except as noted in Paragraph M, subject to the availability of the ERQB and at the discretion of the down-basin parties to the 1954 U. S. Supreme Court Decree. Any releases from the water remaining in the TRB and SRB shall be suspended until storage in the City Delaware Reservoirs is 25 billion gallons (BG) above the Drought Watch line for 15 consecutive days. The most severe set of conservation releases and tailwater flow targets realized as described in Paragraph F through M will remain in effect until storage in the City Delaware Reservoirs is 25 BG above the Drought

Warning line for 15 consecutive days. . In addition, any water remaining in the total AB would be made available subject to the provisions of Paragraph 6.

F. At the direction of the NYSDEC, the HPB may be used to meet the flow targets in Table 1.

Table 1
Habitat Protection Bank Flow Targets

	Flow Target (cfs)			
Target Location	*Normal*	*Drought Watch*	*Drought Warning*	*Drought**
West Branch Delaware R At Hale Eddy	225	190	160	145
East Branch Delaware R At Harvard	175	150	120	115
Neversink River At Bridgeville	115	100	80	75

** Subject to the availability of the ERQB and at the discretion of the down-basin parties to the 1954 U. S. Supreme Court Decree, or availability of the Amelioration Bank (AB).*

G. Conservation releases from the City Delaware Reservoirs shall be as specified in Table 2 with additional releases directed by the NYSDEC to maintain tributary target flows as specified in Paragraph F.

Table 2
Conservation Releases

	Conservation Release (cfs)			
Reservoir	*Normal*	*Drought Watch*	*Drought Warning*	*Drought*
Cannonsville (9/1-5/31)	45	38	32	23
Cannonsville (6/1-8/31)	60	51	43	23
Pepacton	35	30	25	19
Neversink	25	21	18	15

H. The difference between releases resulting from reservoir release operations specified in Paragraphs F and G, and the reference conservation releases specified in Table 3, shall be debited or credited to the HPB. However, a negative balance in the HPB is not allowed.

Table 3
Reference Conservation Releases

Reservoir and Operation Dates	*Release Rate (cfs) - Normal*	*Drought Watch*[(1)]	*Drought Warning*[(2)]	*Drought*[(2)]
Cannonsville				
1/1 – 4/15	45	38	8	8
4/16 – 5/31	45	38	23	23
6/1 – 9/15	160	136	23	23
9/16 – 11/30	45	38	23	23
12/1 – 12/31	45	38	8	8
Pepacton				
1/1 – 4/7	45	38	6	6
4/8 – 4/30	45	38	19	19
5/1 – 5/31	70	60	19	19
6/1 – 8/31	95	81	19	19
9/1 – 9/30	70	60	19	19
10/1 – 10/31	45	38	19	19
11/1 – 12/31	45	38	6	6
Neversink				
1/1 – 4/7	25	21	5	5
4/8 – 4/30	25	21	15	15
5/1 – 9/30	53	45	15	15
10/1 – 10/31	25	21	15	15
11/1 – 12/31	25	21	5	5

(1) 85 percent of the normal conservation release rates.
(2) Basic conservation release rates as specified in Table 4.

I. In the event that banks are exhausted, conservation releases continue as specified in Table 3.

J. No additional water beyond that specified in this resolution will be made available under any circumstances**.**

K. When the combined ERQB and SRB are exhausted, flow targets shall be suspended and only conservation releases as specified in Table 3 can be made, except after October 31 as provided in Paragraph 4 or at those times when the AB is available subject to the provisions of Paragraph 6.

L. In order to assure the delivery of high quality drinking water to New York City and neighboring outside communities, it may be necessary from time to time to decrease or cease the diversion of water from Cannonsville Reservoir, and increase the diversion of higher quality water from Neversink Reservoir. At such times, in order to conserve storage of Neversink Reservoir water, flow targeting at Bridgeville, N.Y. will be suspended and releases will be reduced to the augmented conservation release rates specified in Table 3; these program modifications will remain in effect until such time as Cannonsville Reservoir water quality improves to a level satisfying the criteria below. Prior to initiating such an action, the City of New York will consult with the Decree Parties. The suspension and re-initiation of flow targeting at Bridgeville will be based upon either of the following water quality criteria:

(1) The diversion from Cannonsville Reservoir, based upon a 5-day running average, exceeds any of the following trigger levels for five key water quality parameters:

- Total Phosphorus = 20 µg/L
- Fecal coliform = 20 CFU/100 mL
- Total Coliform = 1000 CFU/100 mL
- Turbidity = 5 NTU
- Total Phytoplankton = 1000 SAU/mL; or

(2) The water quality in the diversion from Cannonsville Reservoir, based upon a 5-day running average, exceeds 50% of any parameter indicated in Subparagraph (1) above and the difference in that value of the parameter is greater than 200% of the value of the same parameter in the diversion from Neversink Reservoir, based upon 5-day running averages.

(For example, if the turbidity exceeds 4 NTU in the diversion from Cannonsville Reservoir and is less than 2 NTU in the diversion from Neversink Reservoir, NYCDEP may temporarily suspend the flow target at Bridgeville and return to conservation releases as described in Table 3)

M. Should combined storage in Neversink, Pepacton, and Cannonsville Reservoirs drop below 25% usable capacity (i.e., less than 67.7 BG), water would be available for thermal mitigation by NYSDEC, from the ERQB, subject to the discretion of the downbasin parties to the 1954 U.S. Supreme Court Decree, and flow targeting at Bridgeville, Harvard, and Hale Eddy will be suspended, until storage recovers to 5 billion gallons above the Drought Watch (Figure 1) line for one day. Conservation releases will be made as specified in Table 4. Under this condition, there will be no debiting or crediting of the HPB, unless the ERQB has been made available, in which case there will be debiting of the ERQB.

Table 4
Basic Conservation Releases

Reservoir and Operation Dates	*Release Rate (cfs)*
Cannonsville	
4/1 – 4/15	8
4/16 – 11/30	23
12/1 – 3/31	8
Pepacton	
4/1 – 4/7	6
4/8 – 10/31	19
11/1 – 3/31	6
Neversink	
4/1 – 4/7	5
4/8 – 10/31	15
11/1 – 3/31	5

5. NYSDEC shall conduct an evaluation in accordance with the Monitoring Plan. The evaluation shall assess the response of tailwater biota, particularly brown and rainbow trout populations, to the experimental release and target flow protocols established herein. The evaluation plan shall include the following components: evaluation need(s), purpose and scope, objectives, approach and methods, evaluation benefits, content of planned reports, evaluation schedule, personnel needs, budget, and source of funds. Where appropriate, results of previous investigations conducted as part of the historical experimental release program shall be included in the evaluation plan.

   NYSDEC shall, on February 28, 2005 and February 28, 2006, submit to the DRBC and to the Decree Parties annual interim progress reports on the study. The initial report to be submitted on February 28, 2005 shall incorporate summary data and conclusions obtained since the experimental release program was initiated in 1977. Discussion of such reports shall be included as an agenda item at annual meetings of the Delaware River Master Advisory Committee.

   By December 31, 2006, NYSDEC shall submit a draft scientific report, which shall include an abstract or executive summary, statements of purpose, scope and objectives, procedures, results, conclusions, recommendations for additional work if warranted, and supporting literature, and shall describe effects on the fishery and other aquatic resources resulting from implementation of this resolution.

   By May 31, 2007, NYSDEC shall submit a final scientific report.

6. In any year during which the Drought Operations Plan for Lake Wallenpaupack is in effect, if on May 1 the basin is not in Normal (see Figure 1), or if after May 1 the basin enters

Drought Watch, an Amelioration Bank (AB) of 3,000 cfs-days will be created. During Drought Watch and Drought Warning (see Figure 1), a total of releases not to exceed 2,000 cfs-days may be made from the AB to meet the target flows according to Table 1. During Drought (see Figure 1), the remainder of the 3,000 cfs-day AB may be used to maintain conservation releases in accordance with Table 2 and for thermal protection in accordance with Paragraph 4.B. Any remaining AB will expire on April 30.

7. In any year during which the Drought Operations Plan for Lake Wallenpaupack is not in effect, releases for flow targeting will only be made from Cannonsville Reservoir for targets at Hale Eddy, to conserve the available bank. No releases will be made for flow targeting from Neversink or Pepacton Reservoirs. Releases from Neversink and Pepacton Reservoirs will be in accordance with Table 3.

8. The Commission and the Decree Parties will review and evaluate available data during the implementation of this program and will consider any modifications that may be necessary to avoid adverse effect to dwarf wedgemussels.

9. This resolution shall take effect upon consent by the Decree Parties and shall expire on May 31, 2007, or earlier either upon a determination by the down-basin parties to the 1954 Supreme Court Decree that the requirements of Paragraph 5 have not been met or when an alternative long-term tailwaters fisheries program, unanimously approved by the Decree Parties, is implemented.

10. Approval of and unanimous consent to this Resolution shall be deemed as approval of and consent to the reservoir releases program for the New York City Delaware River Basin reservoirs as specified in Article 3 of Resolution No. 2002-33.

11. For the effective period, this Resolution shall supersede Resolutions D-77-20 CP (Revision 2) through D-77-20 CP (Revision 6).

/s/ Fred Nuffer
Fred Nuffer, Acting Chairman *pro tem*

/s/ Pamela M. Bush
Pamela M. Bush, Esquire, Commission Secretary

ADOPTED: April 21, 2004

Consent to Action by

Delaware River Basin Commission

Consent of the parties to the U.S. Supreme Court Decree in New Jersey v. New York, 347 U.S. 995 (1954) to the action of the Delaware River Basin Commission approving Resolution No. 2004-3, Docket No. D-77-20 CP (Revision 7), and amending the Comprehensive Plan with respect to experimental modifications to the schedule of release rates from Cannonsville, Pepacton and Neversink Reservoirs.

State of New Jersey	Date	City of New York	Date
State of Delaware	Date	State of New York	Date
State of Delaware	Date	Commonwealth of Pennsylvania	Date